|  |  |
| --- | --- |
| Date |  |
| Team ID | LTVIP2025TMID54121 |
| Project Name | Revolutionizing Liver Care |
| Maximum Marks | 2 Marks |

**Problem – Solution Fit Template:**

Liver cirrhosis is a serious, often fatal condition that progresses silently over time and is typically diagnosed at a late stage, when treatment options are limited and outcomes are poor. Current diagnostic approaches, such as liver biopsies or imaging techniques, are either invasive, costly, or lack accuracy in early-stage detection. Furthermore, reliance on traditional blood tests and manual clinical interpretation can lead to variability and misdiagnosis, especially in resource-limited settings. This creates a significant gap in liver healthcare, delaying intervention and increasing the burden on patients and healthcare systems.

To address this problem, we propose a machine learning-based predictive solution that analyzes patient data—including clinical, biochemical, and demographic parameters—to accurately predict the likelihood of liver cirrhosis at an early stage. This model can serve as a powerful clinical decision support tool, aiding physicians in timely diagnosis and treatment planning. The solution is non-invasive, cost-effective, and scalable, making it especially valuable in areas where access to specialist care is limited. By improving early detection, this technology has the potential to revolutionize liver care, reduce mortality, and optimize healthcare resources. Success will be measured through high diagnostic accuracy, clinician adoption, and real-world improvements in patient outcomes.

**Purpose:**

* To **develop a machine learning-based model** for early prediction of liver cirrhosis.
* To **improve early detection** and reduce late-stage diagnosis of liver disease.
* To provide a **non-invasive, accurate, and cost-effective** diagnostic tool.
* To **support clinicians** with data-driven decision-making in liver care.
* To **reduce mortality and improve treatment outcomes** through timely intervention.
* To make liver disease diagnosis **accessible in low-resource or remote settings**.
* To **integrate technology with healthcare** for scalable and efficient screening.
* To contribute towards **preventive healthcare** using AI and data science.

**Template:**

